

What is claimed is:

1. A method for implementing an application programming interface through a client, comprising the computer implemented steps of:

responsive to specification of a vehicle network class, detecting a physical network of the vehicle network class and returning an object to the client represented by a pointer to the physical network;

making the client an active member of the physical network;

broadcasting a raw message from the client over the physical network as part of detecting all devices active on the physical network; and

providing a database of manufacturer devices to establish a syntax giving meaning to data values transmitted to and received from devices.

2. The method of claim 1, further comprising the computer implemented steps of:

supplying a set of traffic managers allowing detection of and filtering of network messages.

3. The method of claim 2, further comprising the computer implemented steps of:

responsive to a client request, transmitting a data request directed to a device active on the physical network;

responsive to a particular data request from the client, making a synchronous request for the particular data from a device;

obtaining values from devices indicating changes in state;

responsive to a client request, sending specified data values to devices; and

responsive to a client request, periodically sending a data value to a device.

4. The method of claim 3, further comprising the computer implemented steps of:

enumerating all physical devices previously detected on the physical network; and

responsive to client specified filtering criteria, obtaining network messages corresponding to the filtering criteria.

5. A computer implemented translation system between a client and remote devices connected to a vehicle data network, the system comprising:

a plurality of software objects including:

a network interface incorporating a plurality of functions representing a model of a plurality of physical networks;

a data link interface responsive to client requests for acquiring a network instance corresponding to a physical network from the network interface; and

a remote device interface incorporating a plurality of functions representing a plurality model for physical devices installable on a vehicle which is callable through the network interface for handling messages moving between the client and a physical device.

6. A computer implemented translation system as claimed in Claim 5, further comprising a common programming interface supported by the datalink interface.
7. A computer implemented translation system as claimed in Claim 6, further comprising:
 - a device detection interface called from the network interface and which includes a function for indicating to the client that a remote device has been detected in response to a previously commenced device detection operation, and a detection completed function for indicating to the client that a device detection operation has been completed.
8. A computer implemented translation system as claimed in Claim 7, further comprising:
 - a raw message traffic notification interface which issues a call to a client upon receipt of message traffic from the vehicle network.
9. A computer implemented translation system as claimed in Claim 8, further comprising:
 - an interface for notifying a client of receipt of a data value when the client is registered for the data value.
10. A computer implemented translation system as claimed in Claim 9, further comprising:
 - an interface for notifying a client of receipt of a change of state data value for a value associated with a remote device.

11. A computer implemented translation system as claimed in Claim 10, further comprising:

an interface for relating to a client about status for changed data values.

12. A computer implemented translation system as claimed in Claim 11, wherein the data links interface further comprises:

a function for returning an instance of the network interface and providing unique identification to the instance making the network available to the client;

an enumeration function for determining all networks currently available to the client.

13. A computer implemented translation system as claimed in Claim 12, wherein the network interface further includes:

a connection function for establishing communication with a physical network, represented by a network instance to the client;

a device detection function allowing the client to determine which physical devices are connected to a physical network represented by a network instance;

a function for disconnecting the client and the physical network;

an enumerate devices function for returning a set of all physical devices detected on the physical network the last time the device detection function was called;

a function for obtaining a physical address for the physical network;

- a function for obtaining an adaptor name for the physical network;
- a function for obtaining a baud rate for the physical network;
- a function responsive to a client request for returning the time of last operation for the device detection function;
- a function for obtaining a network class from a defined set of possible network classes;
- a function for returning the number of detected devices at the time of the last operation of the device detection function;
- a raw message traffic register function responsive to client requests to obtain messages corresponding to filtering criteria specified by the client in the function;
- a function for unregistering a prior registration for raw message traffic using the raw message traffic register function; and
- a transmit raw message function responsive to client requests.

14. A computer implemented translation system as claimed in Claim 13, wherein the remote device interface further includes:

- a data value receive register function responsive to client request for broadcasting a data request to a remote device and a way of notifying a client that the requested data is being returned;
- a data value receive function responsive to a client request for making a synchronous request of a particular data value from a remote device;

a function for unregistering a request formed using the data value receive register function;

a change of state data value receive register function responsive to user requests for obtaining a change in state status for a particular data value from a particular remote device;

a function for unregistering a registered request for a change of state;

a data value transmit function responsive to client requests for sending a particular data value to a particular remote device;

a registration function for periodic transmission of data values responsive to client requests to send a particular data value to a particular remote device on a periodic basis specified by the client;

an unregistration function for cancelling periodic transmissions of data values;

a function for obtaining remote device addresses;

a function for obtaining a function code for a remote device which then serves as part of the remote device's name; and

a function for obtaining an electronic control unit instance for a remote device which then serves as part of the identification of the remote device.

15. A computer implemented translation system as claimed in Claim 14, wherein the remote device interface further includes:

a function for obtaining an industry group for a remote device;

a function for obtaining a vehicle system instance code for a remote device;

a function for obtaining a vehicle system code for a remote device; and

a function for obtaining a manufacturer code for a remote device, by which a database of remote device properties may be accessed for variables used in calls to the remote device.

16. An application programming interface for a plurality of vehicle network types, comprising:

a client;

a data link interface responsive to the client for acquiring and identifying a physical vehicle network;

a network interface responsive to a request from the data link interface for initiating a communication link between the physical vehicle network and the client which includes identification of the devices connected to the physical network;

a remote device interface responsive to requests from the network interface for translating data values to and from formats usable by the client and the physical network; and

a data traffic management facility monitoring the network interface, the remote device interface and the physical network to provide indication of message traffic, message identification and transmission.

17. An application programming interface as claimed in Claim 16, wherein the network interface implements a plurality of software functions, including:

a function for obtaining a class designation for a network;

a function for implementing a network specific connection between the client and the network in response to a request by the client including the class designation for the network; and

a function detecting devices active on the network.

18. An application programming interface as claimed in Claim 17, wherein the remote device interface further comprises:

a data value receive register function responsive to client request for broadcasting a data request to a remote device and a way of notifying a client that the requested data is being returned;

a data value receive function responsive to a client request for making a synchronous request of a particular data value from a remote device;

a function for unregistering a request formed using the data value receive register function;

a change of state data value receive register function responsive to user requests for obtaining a change in state status for a particular data value from a particular remote device;

a function for unregistering a registered request for a change of state;

a data value transmit function responsive to client requests for sending a particular data value to a particular remote device;

a registration function for periodic transmission of data values responsive to client requests to send a particular data value to a particular remote device on a periodic basis specified by the client;

an unregistration function for cancelling periodic transmissions of data values;

a function for obtaining remote device addresses;

a function for obtaining a function code for a remote device which then serves as part of the remote device's name; and

a function for obtaining a unit instance for a remote device which then serves as part of the identification of the remote device.

19. A application programming interface as claimed in Claim 18, wherein the network interface further comprises:

a function for disconnecting the client and the physical network;

an enumerate devices function for returning a set of all physical devices detected on the physical network the last time the device detection function was called;

a function for obtaining a physical address for the physical network;

a function for obtaining an adaptor name for the physical network;

a function for obtaining a baud rate for the physical network;

a function responsive to a client request for returning the time of last operation for the device detection function;

a function for obtaining a network class from a defined set of possible network classes;

a function for returning the number of detected devices at the time of the last operation of the device detection function;

a raw message traffic register function responsive to client requests to obtain messages

corresponding to filtering criteria specified by the client in the function;

a function for unregistering a prior registration for raw message traffic using the raw message traffic register function; and

a transmit raw message function responsive to client requests.

20. An application programming interface comprising:

a host computer on which the application programming interface is installed;

a hardware interface allowing attachment of the host computer to a motor vehicle network;

a software module for determining the motor vehicle network claim;

a software module for registering the host computer as a client on the motor vehicle network;

a hardcast module for detecting all active devices attached to the motor vehicle network; and

a software database including parameters for the detected devices accessible to the host computer.

21. An application programming interface, for execution on a temporary client of one of a plurality of vehicle networks of diverse types, the application programming interface comprising:

a plurality of high level interfaces representing a common abstraction of vehicle networks with diverse types;

a software database accessible through the high level interfaces specifying meaning for values

transmitted to and obtained from physical devices attached to a network; and

a plurality of COM functions completed by reference to the database.